

1-2. (Cancelled)

3. (Previously presented) The capacitance detecting proximity sensor of claim 22, wherein the environment in which the first detection electrode and the second detection electrode are disposed in the sensor structure is differentiated so that the spatial distance between the detection subject in the vicinity of the difference threshold and the first detection electrode and the spatial distance between the same detection subject and the second detection electrode are different.

4-10. (Cancelled)

11. (Previously presented) The capacitance detecting proximity sensor of claim 22, wherein the sensor circuit includes a first capacitance detection circuit that measures the capacitance to ground of the first detection electrode, a second capacitance detection circuit that measures the capacitance to ground of the second detection electrode, and a difference detection circuit that outputs the difference between the measured outputs of these two capacitance detection circuits.

12. (Original) The capacitance detecting proximity sensor of claim 11, wherein the first and second capacitance detection circuits are switched capacitor-type capacitance detection circuits.

13-21. (Cancelled)

22. (Currently amended) A capacitance detecting proximity sensor that electrostatically detects when a detection subject has come into proximity within a difference threshold, comprising:

a sensor structure housing a first detection electrode and a second detection electrode that are mutually electrically independent, both detecting surfaces of the first detection electrode and the second detection electrode being disposed opposing the detection subject that is approaching, the environment of the first detection electrode and the second detection electrode in the sensor structure being differentiated and configured so that when the detection subject is present in the vicinity of the difference threshold, the electrostatic environmental condition between the detection subject and the first detection electrode and the electrostatic environmental condition between the same detection subject and the second detection electrode being different; and

a sensor circuit for detecting and outputting the difference between a capacitance to ground formed by the first detection electrode and a capacitance to ground formed by the second detection electrode,

wherein the first detection electrode is plurally divided and the second detection electrode is plurally divided, and  
same number of shield electrodes, individually surrounding and shielding each of the divided first detection electrode and the divided second detection electrode, as sum of numbers of the divided first detection electrode and the divided second detection electrode are disposed.

23. (Currently amended) A capacitance detecting proximity sensor that electrostatically detects when a detection subject has come into proximity within a difference threshold, comprising:

a sensor structure housing a first detection electrode and a second detection electrode that are mutually electrically independent, both detecting surfaces of the first detection electrode and the second detection electrode being disposed opposing the detection subject that is approaching, the environment of the first detection electrode and the second detection electrode in the sensor structure being differentiated and configured so that when the detection subject is present in the vicinity of the difference threshold, the electrostatic environmental condition between the detection subject and the first detection electrode and the electrostatic environmental condition between the same detection subject and the second detection electrode being different; and

a sensor circuit for detecting and outputting the difference between a capacitance to ground formed by the first detection electrode and a capacitance to ground formed by the second detection electrode;

~~wherein a shield electrode is disposed in the sensor structure so as to surround another portion of the difference threshold vicinity excluding a front side portion of the difference threshold vicinity facing the detection subject, and the first detection electrode and the second detection electrode are electrostatically shielded by the shield electrode excluding the front direction;~~

~~the shield electrode being formed in a rail shape having a substantially U-shaped cross section, with the first detection electrode and the second detection electrode being housed inside the U-shaped groove wherein the first detection electrode and the second detection electrode are disposed so that the spatial distance between the detection subject in the vicinity of the difference threshold and the first detection electrode and the spatial distance between the same detection subject and the second detection electrode are same, and~~

a first dielectric is disposed at the front side of the first detection electrode facing the detection subject, and a second dielectric having the dielectric constant different

from the dielectric constant of the first dielectric is disposed at the front side of the second detection electrode facing the detection subject.